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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/642,507

08/18/2003

Rinze Benedictus

APV31646

1687

24257

7590

03/22/2007

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EXAMINER

MORILLO, JANEL COMBS

ART UNIT

PAPER NUMBER

1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/642,507	Applicant(s) BENEDICTUS ET AL.	
	Examiner Janelle Combs-Morillo	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,7,9-20,22-31 and 38-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,7,9-20,24-31 and 38-45 is/are rejected.
- 7) ☒ Claim(s) 22 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 4, 7, 9-20, 24-31, 38-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rioja (US 6,562,154).

Rioja teaches a Al-Cu alloy comprising (in weight%): 3.8-4.4% Cu, 1.0-1.6% Mg, 0.3-0.7% Mn 0.09-0.12% Zr (see Rioja at cl. 5), typically 0.04% Si (Table 1), typically 0.04% Fe (see Table 1), up to 1% Zn, which overlaps or touches the boundary of the presently claimed alloying ranges of Cu, Mg, Si, Fe, Mn, and Zr (claims 1, 7, 9-15, 17-20, 31, 39-44). And is a close approximation of the presently claimed Zr minimum (cl. 38). Additionally, example 354-381 falls within the ranges of claims 1,7,11,13-15,17-19,40,42. Rioja teaches that alloying elements Mn and Zr form dispersoids (column 5 lines 25, 32) with help control grain growth and recrystallization. Rioja teaches said alloy is in the form of a rolled product in a T3 type temper (col. 7 line 12). The presently claimed characteristics of “high damage tolerant”, “improved fatigue crack growth resistance”, and dispersoids are held to be expected for the alloy product (processed substantially as claimed) taught by Rioja. Rioja teaches a microstructure with grains having an average length to width aspect ratio greater than about 4 to 1 (cl. 1, column 11), which touches the boundary/is a close approximation of the presently claimed “smaller than about 4 to 1”. Rioja does not specify a T351 temper.

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With regard to the process steps ("T351 temper"), it is well settled that a product-by-process claim defines a product, and that when the prior art discloses a product substantially the same as that being claimed, differing only in the manner by which it is made, the burden falls to applicant to show that any process steps associated therewith result in a product materially different from that disclosed in the prior art. See MPEP 2113, *In re Brown* (173 USPQ 685) and *In re Fessman* (180 USPQ 524) *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Because Rioja teaches an Al-Cu -Mg alloy product that falls within the presently claimed ranges (or overlaps the instant ranges), and because applicant has not shown that the instant process steps produce a materially different product than the alloy product taught by Rioja, it is held Rioja has created a prima facie case of obviousness of the presently claimed invention.

Alternatively, it would have been obvious to one of ordinary skill in the art to apply a T351 temper to the alloy of Rioja, because it is known to apply a variety of T3 type tempers to similar Al-Cu-Mg age hardenable alloys.

Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility.

Concerning claims 3 and 4, Rioja teaches said alloy can have a recrystallized microstructure (column 10 line 1), if given a high temperature recrystallization anneal (column 6 lines 48-51). Therefore, the product taught by Rioja is held to be substantially recrystallized, which falls within the presently claimed ranges of >75% and >80% recrystallized.

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Concerning claim 16, Rioja teaches the alloying elements that for coherent and incoherent dispersoids in Al can be added to control recrystallization and recovery (column 2 lines 1-10), including Cr and Zr. Though the preferred disclosure of Rioja is drawn to Al-Cu alloys with Zr, it would have been obvious to one of ordinary skill in the art to partially replace Zr with Cr because Rioja teaches that said elements both form dispersoids, and that combinations of dispersoid forming elements can be used (column 2 lines 9-10).

Concerning claim 20, Rioja teaches minor amounts of Sc or Li can be added (see Table 1).

Concerning property claims 24-25, Rioja does not mention the fatigue crack growth rate. However, said properties are held to be inherent in the overlapping alloy processed in a substantially similar method of processing said alloy including steps of reheating, hot rolling, recrystallize anneal, solution heat treat, aging (column 9 lines 10-14). The examiner asserts that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

Concerning claim 26 and 45, Rioja teaches a substantially similar method of processing said alloy including steps of reheating, hot rolling, solution heat treating, stretching (column 6 line 14), aging, quenching, and ageing to a T3 type temper (column 9 lines 10-14). With regard to the degree of stretching mentioned in claim 45, see discussion of product by process limitations above.

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Concerning claims 27-28, Rioja teaches said alloy can be made final sheets 0.01-0.25 in (0.254-6.3mm) and intermediate slabs 2 inches thick (column 8 lines 3-4).

Concerning claim 29, Rioja teaches said alloy can be processed into a sheet for aircraft fuselages (abstract).

Concerning instant claim 30, it would have been obvious to one of ordinary skill in the art to use said alloy as an aircraft wing member, substantially as presently claimed, because Rioja teaches said Al-Cu alloy has excellent strength and toughness properties and can be used in aerospace applications (abstract).

Allowable Subject Matter

3. Claims 22 and 23 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The prior art does not teach or suggest the presently claimed Al-Cu-Mg-Mn-Zr alloy rolled product in a T351 temper, complete with the claimed aspect ratio.

Response to Amendment/Arguments

5. In the response filed on December 20, 2006 applicant amended claims 1, 9, 22, 23, 31, 40-42, submitted various arguments traversing the rejections of record. Claims 1, 3, 4, 7, 9-20, 22-31, 38-45 are pending.

6. As stated in the last office action, Applicant's argument that the present invention exhibits unexpected results with respect to the prior art of Heymes has been found persuasive. The examiner agrees that the closest example A4 of Heymes is substantially similar to that of

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AA2524, and that applicant has shown unexpectedly superior fatigue crack growth improvement over AA2524. Said unexpected results are held to be commensurate in scope with instant amended independent claims 1 and 42.

7. Amended claim 1 is rejected in view of Rioja, as Rioja teaches a microstructure with grains having an average length to width aspect ratio greater than about 4 to 1 (cl. 1, column 11), which touches the boundary/is a close approximation of the presently claimed "smaller than about 4 to 1". Dependent claims 22 and 23 (drawn to aspect ratio smaller than about 3 to 1 and smaller than about 2 to 1 respectively), are not rejected/obvious in view of Rioja.

8. The provisional ODP rejection in view of the claims of 10/639,776 has been overcome, as the Cu ranges no longer overlap those of the present invention.

9. The provisional ODP rejection in view of the claims of 10/642518 has been overcome, as the Mn ranges no longer overlap those of the present invention.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Garratt (US 6,974,633) is drawn to a substantially similar Al-Cu-Mg-Mn-Zr alloy, however, Garratt does not teach or suggest an alloy with the claimed aspect ratio (see, for example, Fig. 7 of Garratt). Similarly, the Al-Cu-Mg-Mn-Zr alloy with an unrecrystallized grain structure of Karabin does not render obvious the presently claimed Al-Cu-Mg-Mn-Zr alloy rolled product in a T351 temper, complete with the claimed aspect ratio.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCM
March 19, 2007

ROY KING
SUPERVISOR
ART UNIT 1742